

Thus the young bird exhibits a far greater amount of vivid red colour than the adult, and, besides, a different mode of distribution: it has the under surface of the body for the greater part *red* and the thighs *black*, whereas in the mature bird the under surface is *black* and the thighs *red*. This is, at all events, a noteworthy fact; yet it is not quite exceptional among birds.

In the young of *Tanygnathus luzonensis* the head is *green* like the greater part of the plumage, and the rump is light *blue*; in the adult the upper part of the head is light *blue* and the rump *green* (Brüggemann, Abh. Ver. Brem. v. p. 38).

The immature *Lorius histrio* has the whole crown of the head *blue* and the fore back *crimson*; the old bird has the head almost entirely *crimson* and the back *blue* (Brügg. l. c. p. 41).

In *Nectarinia flavostriata* the wings and tail of the young bird (the general plumage of which is olive-coloured) are *red*; those of the adult are blackish brown, and the remainder of its plumage is *red* (Brügg. l. c. p. 74).

To add an example of a common indigenous bird, we find that in the young bird of the spotted woodpecker (*Picus major*) the crown of the head is *crimson*, and the upper surface of the body partly marked with white, where the adult is of a uniform black.

These extraordinary instances of the young birds showing *ornamental* colours in parts of the body which are plain-coloured in the adults can only be explained by the suggestion that the immature plumage gives a recapitulation of the colours possessed by the ancestors of the species. Thus the young *Picus major* shows a stronger resemblance to the other European species (*P. leuconotus*, *P. Lilfordii*, *P. medius*) than the adult does; or, in other words, it has kept more strictly the colours of the common parent of the group.

I am of opinion that many more instances of such conservative *ornamental* plumages in the young birds can be found if they are searched for.

V.—*Characters of new Genera and of some undescribed Species of Phytophagous Beetles.* By JOSEPH S. BALY, F.L.S.

[Continued from ser. 4. vol. xx. p. 386.]

Fam. Chrysomelidæ.

Chrysomela Jacobyi.

C. oblongo-ovata, convexa, nigra, nitida, capite thoraceque minute

punctatis, hujus lateribus incrassatis, intus sulco foveolato marginatis; elytris sat fortiter substriatim punctatis, limbo exteriore late rufo.

Long. $3\frac{1}{2}$ -4 lin.

Hab. China, Province of Shantung.

Antennæ half the length of the body. Thorax twice as broad as long; sides nearly straight and parallel from the base to the middle, thence rounded and converging to the apex, anterior angles acute; upper surface transversely convex, minutely punctured, rather more coarsely punctured along the basal margin; lateral margin thickened, impressed with a few deep punctures; the margin is bounded within by a deep, very coarsely and irregularly punctured groove, the middle portion of which is less deeply excavated than the rest of its surface. Elytræ rather broader than the thorax, broadly oblong, rather strongly punctured, the punctures arranged in irregular longitudinal rows; on each elytron are several smooth impunctate vittæ.

Phyllocharis eximia.

P. elongata, modice convexa, nitida, subtus rufo-testacea, pectoris medio, pleuris, abdominis basi pedibusque lète cyaneis; supra lète cyanea, verticis macula thoracisque lateribus latis rufo-testaceis; elytris tenuiter punctatis, punctis prope suturam striatim dispositis, apicem versus fere deletis, singulatim macula humerali, fascia transversa prope medium, intus abbreviata, margine exteriore inter maculam et fasciam, vittisque duabus, una curvata, a basi ad elytri tertiam partem extensa, alteraque recta, apicali rufo-testaceis.

Long. 5- $5\frac{1}{2}$ lin.

Hab. Australia, Rockhampton.

Antennæ robust, second joint moniliform, third one half larger than the second, fourth and the following two equal, each rather longer than the second. Thorax twice as broad as long; sides straight and parallel, obsoletely sinuate behind the middle, rounded and converging at the apex; disk smooth, impunctate, impressed on either side with a distinct fovea; basal margin distinctly punctured. Elytra oblong, sides parallel, converging near the apex, the latter acutely rounded.

Phyllocharis Jansoni.

P. elongata, modice convexa, rufo-testacea, nitida, pleuris, abdominis basi, pedibus antennisque obscure metallice cæruleis, his extrorsum nigris; capitis macula thoracisque maculis duabus, his transversim positis, fuscis; elytris oblongis, tenuiter substriatim punctatis, punctis apicem versus fere deletis, singulatim macula sub-

ovata infra callum humerale, plaga magna cuneiformi communi, a basi ad longe pone medium producta, alteraque oblonga, obliqua, pone medium posita, intus ad suturam adfixa cyaneis; scutello nigro.

Long. $3\frac{1}{2}$ lin.

Hab. Australia, Rockhampton.

Antennæ moderately robust, more than half the length of the body; second joint short, third and fourth equal, ovate, each one half longer than the second. Thorax twice as broad as long; sides straight and parallel, rounded and converging at the apex, anterior angles obtuse; upper surface excavated on either side at the base, the excavations deeply punctured; disk smooth, impunctate. Elytra broader than the thorax, oblong, less acutely rounded at the apex than in the preceding species.

Fam. Gallerucidæ.

Subfam. HALTICINÆ.

Genus NIPHRÆA.

Corpus subelongatum, modice convexum. *Caput* modice exsertum; *antennis* filiformibus, 11-articulatis; *oculis* prominulis, integris; *encarpis* contiguis; *carina* oblonga. *Thorax* transversus, basi transversim truncatus, disco ante basin sulco transverso, utrinque ad marginem lateralem extenso, impressus. *Elytra* thorace multo latiora, oblonga, punctato-striata, pube sericea sat dense vestita. *Pedes* simplices; *femoribus* posticis incrassatis; *tibiis* apice spina acuta armatis; *tarsis* posticis ad tibiæ apicem insertis; *unguis* appendiculatis. *Prosternum* angustatum; *acetabulis* anticis apertis.

Type *Niphræa hirtipennis*.

Closely allied to *Trichaltica*, but separated from that genus by the transverse groove of the thorax, which in the present case extends entirely across the base of the thorax.

Niphræa hirtipennis.

N. subelongata, modice convexa, fulva, nitida, antennis extrorsum nigro-piceis, pectore, abdomine (apice excepto) elytrisque nigris; his pube griseo-argentea sat dense vestitis, granuloso-rugulosis, subopacis, fortiter punctato-striatis, limbo exteriore, apice ampliato, fulvo.

Long. $2-2\frac{1}{2}$ lin.

Hab. Lake Nyassa.

Vertex smooth, impunctate; encarpæ subpyriform, contiguous; antennæ nearly half the length of the body, third joint

equal in length to the second, fourth twice as long as the third. Thorax one half as broad again as long; sides diverging from the base to beyond the middle, thence rounded and converging to the apex; disk finely but distinctly punctured.

Fam. Hispidæ.

Cephaloleia gracilis.

Filiformis, subdepressa, nigro-picea, subnitida, minute granulosa, antennis basi, pedibus, thoracis lateribus elytrorumque plaga basali rufo-brunneis; thorace subquadrato, foveolato-punctato; elytris elongatis, apicem versus attenuatis, apice late truncatis, sat fortiter punctato-striatis, interspatiis basi et ad latera convexiusculis, singulatim vitta alba, basi et apice abbreviata, ornatis.

Long. 2 lin.

Hab. Amazons.

Face and front concave, coarsely punctured; five lower joints of antennæ obscure rufo-piceous, the rest black. Thorax scarcely broader than long; sides straight and parallel, slightly converging towards the apex; anterior angles very obtusely rounded, the hinder angles acute; basal margin subangulate-emarginate on either side; median lobe only slightly produced, obtusely rounded; upper surface transversely convex, impressed with large round punctures, a longitudinal space on the middle disk impunctate; extreme lateral margin rufo-brunneous. Scutellum obscure piceous. Elytra elongate, slightly wider at the base than the thorax; basal margin oblique, the humeral angle distinct; sides straight and parallel, slightly converging towards the apex, the latter broadly truncate.

Cephaloleia subdepressa.

Elongato-ovata, subdepressa, castanea, subnitida, pedibus obscure fulvis, antennis (articulis basalibus tribus exceptis) nigris; thorace sat fortiter punctato, piceo, lateribus castaneis; elytris ovatis, distincte punctato-striatis, interspatiis minute granulosis, ad latera convexiusculis, pone scutellum leviter transversim rugulosis.

Mas abdominis segmento anali concavo-emarginato.

Fem. abdominis segmento anali rotundato, integro.

Var. A. elytris plus minusve piceo tinctis.

Long. 1½ lin.

Hab. Banks of the Amazon.

Face distinctly but not strongly punctured. Thorax about a third broader than long at the base; sides straight and nearly parallel in the ♂, less parallel in the ♀, rounded at the apex in both sexes; basal margin deeply concave-cmargin-

nate on either side, median lobe distinctly produced, obtusely truncate; upper surface covered with round punctures, middle disk less closely punctured.

Gonophora tibialis.

Subelongata, subdepressa, pallide rufo-fulva, nitida, elytrorum dimidio postico antennisque nigris, harum articulo basali intus ultimisque duobus totis obscure rufis; thorace medio longitudinaliter canaliculato, basi ante scutellum transversim sulcato, utrinque ante medium vitta elevata instructo, rude et crebre foveolato, interspatiis elevatis, inter se reticulatis; elytris anguste oblongis, fere parallelis, apice obtuse truncatis, angulis posticis distinctis, obtusis, singulatim profunde 8-seriatim foveolatis, tricostatis, costis duabus internis valde elevatis, costa externa medio interrupta; tibiis anticis compressis, valde dilatatis.

Long. 3 lin.

Hab. Sulu Islands, New Guinea.

Head smooth, impunctate; anterior margin of clypeus deeply concave; antennæ half the length of the body, first and second joints short, equal, third nearly twice the length of the second. Thorax transverse; sides straight and nearly parallel, abruptly constricted at the apex; surface closely covered with oblong foveæ, the interspaces between which are thickened and anastomose irregularly with each other; at the base just in front of the scutellum is a short deep transverse groove, from either extremity of which an oblique depression extends upwards on the disk. Elytra broader than the thorax, each with three raised longitudinal costæ; the two inner ones entire, strongly elevated, the outer one interrupted for the greatest portion of its length; interspaces between the costæ each with a double row of large deep foveæ, interstices between the foveæ transversely thickened; interspace between the first and second costa impressed at the base with a triple row of punctures; extreme apical margin edged near the suture with rufo-fulvous.

Gonophora lineata.

Elongata, flavo-fulva, nitida, tarsis nigro-piceis, genibus, tibiis anticis fere totis, tibiisque intermediis apice piceo tinctis; antennis nigris, articulo ultimo apice obscure rufo; thorace convexo, basi ante scutellum transversim sulcato, utrinque ante sulcum oblique depresso, foveis numerosis magnis impresso, linea media discoque antico fere impunctatis: elytris thorace latioribus, parallelis, apice rotundatis, minute serratis, dorso subdepressis, singulatim tricostatis, costis duabus internis validis, costa externa minus elevata, medio obsoleta, interspatiis profunde biseriatim foveolatis, transversim costulatis; nigro-piceis, costa prima a basi fere ad

apicem, costa secunda ante medium (his costis basi convexis) marginaque exteriore flavis.

Long. $2\frac{1}{2}$ lin.

Hab. Sulu Islands, New Guinea.

Antennæ slender, more than half the length of the body; second joint slightly longer than the first, the third one half longer than the second, fourth and fifth each equal in length to the third. Thorax rather broader than long; sides straight and slightly diverging from the base to beyond the middle, thence converging and deeply sinuate to the apex; hinder angles produced laterally into a short stout tooth; above convex, cylindrical at the apex, flattened towards the base. Scutellum piceous, its apex broadly truncate. Apex of anterior tibia curved inwards and produced into an acute tooth.

Gonophora Horsfieldi.

Filiformis, nigra, nitida, tarsis piceis; thorace basi et apice rufo-piceo, subcylindrico, ad latera foveolato-punctato, apice punctorum serie unica impresso, disco laevi, basi transversim sulcato et utrinque ante sulcum excavato; elytris subparallelis, apice obtuso rotundatis, minute serratulis, fulvis, apice nigris, singulatim bicostatis, costis valde elevatis, integris, interspatiis profunde biseriatim foveolatis, interstitiis apicem versus transversim costulatis; pedibus robustis.

Long. 2 lin.

Hab. Java.

Antennæ rather slender, more than half the length of the body, black, the two lower joints obscure piceous; first and second joints short, equal, the third rather longer. Thorax rather broader than long; sides rounded, constricted at base and apex, hinder angles produced laterally into a short obtuse tooth.

Gonophora crassipes.

Elongata, angustata, flava, nitida, tarsis antennisque piceis, his extrosum nigris; elytrorum macula apicali nigro-picea; thorace transverso, parce foveolato-punctato, basi transversim sulcato et utrinque ante sulcum oblique impresso, apice cylindrico, serie unica punctorum impresso; elytris parallelis, apice rotundatis, integris, singulatim bicostatis, costis valde elevatis, integris, interspatiis foveis magnis biseriatim dispositis profunde impressis, interstutiis apicem versus transversim costulatis; tibiis crassis.

Long. $1\frac{4}{5}$ lin.

Hab. Kai Island.

Antennæ half the length of the body, seven lower joints obscure piceous, the rest black; first and following three joints

equal in length. Thorax with its sides obliquely diverging from the base to beyond the middle, thence rounded and converging to the apex, the latter abruptly constricted.

Cephalodonta Haroldi.

Cuneiformis, subdepressa, nitida, subtus nigra, thoracis lateribus, femoribus tibiisque rufo-fulvis; supra luteo rufo-fulva, antennis nigris, articulis rufo variegatis; thorace subquadrato, lateribus obsolete angulatis, angulis anticis antrorsum productis; disco transversim convexo, ante basin transversim depresso, profunde foveolato-punctato; elytris a basi apicem versus leviter ampliatis, apice obtusis, leviter serratulis, angulo postico distincto, profunde foveolato-punctatis, punctis striatim dispositis, hic illic confusis, interspatiis ad latera et ad apicem elevato-vittatis, hic illic irregulariter verrucosis.

Long. $3\frac{1}{4}$ - $3\frac{3}{4}$ lin.

Hab. Columbia, river Magdalena.

Nearly allied to *C. tarsata*, at once known by the coarser punctuation and by the irregular surface of the elytra.

VI.—*On the Minute Structure of the Corals of the Genera Heliophyllum and Crepidophyllum.* By H. ALLEYNE NICHOLSON, M.D., D.Sc., F.L.S., Professor of Natural History in the University of St. Andrews.

Genus HELIOPHYLLUM*.

Heliophyllum, Hall, in Dana's 'Zoophytes,' Explor. Exped. vol. viii. p. 356, fig. 3, 1846.

Gen. char. Corallum simple or compound, usually turbinate, cono-cylindrical or cylindrical, rarely massive. Increase, in the simple forms, by simple calicular gemmation. Epitheca complete, thin, with encircling striae and annulations of growth. Tabulae not complete, but confined to a more or less extensively developed central area. Septa well developed, of two orders, a greater or less number of the primary septa almost always passing inwards to the centre of the visceral chamber, where they become flexuous and unite with one another in an irregular network. In cross section the septa are invariably crossed by conspicuous cross bars or denticulations.

* Descriptions of the characters of *Heliophyllum* and *Crepidophyllum* formed part of a paper, by Mr. James Thomson and myself, which was laid before the Royal Society of Edinburgh in the session 1875-76, and an abstract of which was published in the 'Proceedings,' vol. ix. No. 95, p. 149.